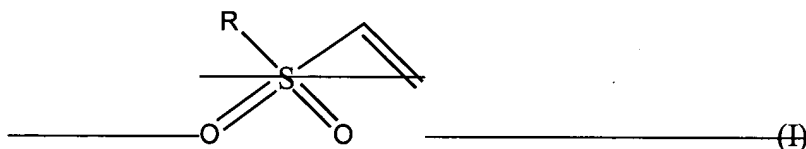


**AMENDMENTS TO THE CLAIMS:**

**This listing of claims will replace all prior versions and listing of claims in the application.**

Claims 1-17 (canceled).

Claim 18 (currently amended): A non-aqueous electrolyte comprising (i) a non-aqueous solvent, ~~comprising 5 - 50% by volume of a cyclic carbonate, 5 - 75% by volume of a cyclic ester and 0 - 70% by volume of a linear carbonate and~~ (ii) an electrolyte salt dissolved therein and (iii) 0.01 to 20% by weight, based upon a total weight of the electrolyte, of divinyl sulfone a ~~vinyl sulfone derivative having the formula (I):~~



~~wherein R is selected from the group consisting of a C<sub>1</sub> to C<sub>12</sub> alkyl group, a C<sub>2</sub> to C<sub>12</sub> alkenyl group, and a C<sub>3</sub> to C<sub>6</sub> cycloalkyl group, wherein said non-aqueous electrolyte is in the state of a liquid.~~

Claim 19 (currently amended): The non-aqueous electrolyte as claimed in claim 18, wherein said non-aqueous solvent comprises 5 - 50% by volume of a cyclic carbonate, 5 - 75% by volume of a cyclic ester and 0 - 70% by volume of a linear carbonate ~~vinyl sulfone derivative (I) comprises divinyl sulfone.~~

Claim 20 (previously presented): The non-aqueous electrolyte as claimed in claim 18, wherein the electrolyte salt comprises at least one compound selected from the group consisting of LiPF<sub>6</sub>, LiBF<sub>4</sub>, LiClO<sub>4</sub>, LiN(SO<sub>2</sub>CF<sub>3</sub>)<sub>2</sub>, LiN(SO<sub>2</sub>C<sub>2</sub>F<sub>5</sub>)<sub>2</sub>, LiC(SO<sub>2</sub>CF<sub>3</sub>)<sub>3</sub>, LiPF<sub>3</sub>(CF<sub>3</sub>)<sub>3</sub>, LiPF<sub>3</sub>(C<sub>2</sub>F<sub>5</sub>)<sub>3</sub>, LiPF<sub>4</sub>(C<sub>2</sub>F<sub>5</sub>)<sub>2</sub>, LiPF<sub>5</sub>(iso-C<sub>3</sub>F<sub>7</sub>), and LiPF<sub>4</sub>(iso-C<sub>3</sub>F<sub>7</sub>)<sub>2</sub>.

Claim 21 (previously presented): The non-aqueous electrolyte as claimed in claim 20, wherein the electrolyte salt comprises LiBF<sub>4</sub>.

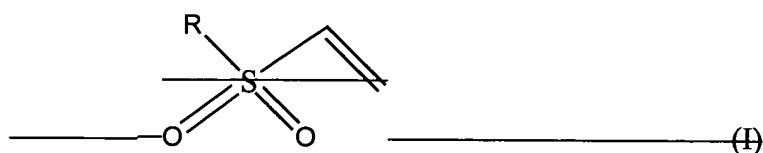
Claim 22 (currently amended): The non-aqueous electrolyte as claimed in claim 18, wherein the content of the ~~divinyl vinyl-sulfone derivative (I)~~ is 0.1 to 10% by weight, based upon a total weight of the electrolyte.

Claim 23 (currently amended): The non-aqueous electrolyte as claimed in claim ~~19~~ 18, wherein the cyclic carbonate comprises at least one member selected from the group consisting of ethylene carbonate (EC), propylene carbonate (PC) and butylene carbonate (BC).

Claim 24 (currently amended): The non-aqueous electrolyte as claimed in claim ~~19~~ 18, wherein the cyclic ester comprises at least one member selected from the group consisting of  $\gamma$ -butyrolactone and  $\gamma$ -valerolactone.

Claim 25 (currently amended): The non-aqueous electrolyte as claimed in claim ~~19~~ 18, wherein the linear carbonate comprises at least one member selected from the group consisting of dimethyl carbonate (DMC), methylethyl carbonate (MEC), diethyl carbonate (DEC), ~~methylpropyl methypropyl~~-carbonate (MPC), butylmethyl carbonate (BMC), methylisopropyl carbonate (MIPC), isobutylmethyl carbonate (IBMC), sec-butylmethyl carbonate (SBMC) and tert-butylmethyl carbonate (TBMC).

Claim 26 (currently amended): A lithium secondary battery comprising (a) a cathode, (b) an anode and (c) a non-aqueous electrolyte comprising (i) a non-aqueous solvent, ~~comprising 5—50% by volume of a cyclic carbonate, 5—75% by weight of a cyclic ester and 0—70% by volume of a linear carbonate and~~ (ii) an electrolyte salt dissolved therein; and (iii) 0.01 to 20% by weight, based upon a total weight of the electrolyte, of a ~~divinyl vinyl-sulfone derivative~~ having the formula (I):



wherein R is selected from the group consisting of a C<sub>1</sub>-to-C<sub>12</sub>-alkyl group, C<sub>2</sub>-to-C<sub>12</sub>-alkenyl group, and C<sub>3</sub>-to-C<sub>6</sub>-cycloalkyl group, wherein said non-aqueous electrolyte is in the state of a

liquid.

Claim 27 (currently amended): The lithium secondary battery as claimed in claim 26, wherein said non-aqueous solvent comprises 5 - 50% by volume of a cyclic carbonate, 5 - 75% by volume of a cyclic ester and 0 - 70% by volume of a linear carbonate~~vinyl sulfone derivative (I) is divinyl sulfone.~~

Claim 28 (currently amended): The lithium secondary battery as claimed in claim 26, wherein the electrolyte salt comprises at least one compound selected from the group consisting of  $\text{LiPF}_6$ ,  $\text{LiBF}_4$ ,  $\text{LiClO}_4$ ,  $\text{LiN}(\text{SO}_2\text{CF}_3)_2$ ,  $\text{LiN}(\text{SO}_2\text{C}_2\text{F}_5)_2$ ,  $\text{LiC}(\text{SO}_2\text{CF}_3)_3$ ,  $\text{LiPF}_3(\text{CF}_3)_3$ ,  $\text{LiPF}_3(\text{C}_2\text{CF}_5)_3$ ,  $\text{LiPF}_4(\text{C}_2\text{F}_5)_2$ ,  $\text{LiPF}_5(\text{iso-C}_3\text{F}_7)$  ~~$\text{LiPF}_3(\text{C}_2\text{CF}_5)_3$ ,  $\text{LiPF}_4(\text{C}_2\text{F}_5)_2$ ,  $\text{LiPF}_5(\text{iso-C}_3\text{F}_7)$~~ , and  $\text{LiPF}_4(\text{iso-C}_3\text{F}_7)_2$ .

Claim 29 (previously presented): The lithium secondary battery as claimed in claim 28, wherein the electrolyte salt comprises  $\text{LiBF}_4$ .

Claim 30 (currently amended): The lithium secondary battery as claimed in claim 26, wherein the content of the divinyl~~vinyl sulfone derivative (I)~~ is 0.1 to 10% by weight, based upon the total weight of the electrolyte.

Claim 31 (currently amended): The lithium secondary battery as claimed in claim ~~27~~ 26, wherein the cyclic carbonate comprises at least one member selected from the group consisting of ethylene carbonate (EC), propylene carbonate (PC) and butylene carbonate (BC).

Claim 32 (currently amended): The lithium secondary battery as claimed in claim ~~27~~ 26, wherein the cyclic ester comprises at least one member selected from the group consisting of  $\gamma$ -butyrolactone and  $\gamma$ -valerolactone.

Claim 33 (currently amended): The lithium secondary battery as claimed in claim ~~27~~ 26, wherein the linear carbonate comprises at least one member selected from the group consisting of dimethyl carbonate (DMC), methylethyl carbonate (MEC), diethyl carbonate (DEC), methylpropyl carbonate (MPC), butylmethyl carbonate (BMC), methylisopropyl carbonate

(MIPC), isobutylmethyl carbonate (IBMC), sec-butylmethyl carbonate (SBMC) and tert-butylmethyl carbonate (TBMC).

Claim 34 (previously presented): The lithium secondary battery as claimed in claim 26, wherein said anode comprises a carbonaceous material having a graphite-type crystal structure having a lattice spacing ( $d_{002}$ ) of the lattice face (002) of about 0.335 to 0.340 nanometers.